American Journal of Physiology: Renal, Fluid and Electrolyte Physiology

VOLUME 28, July–December 1990

Editor: K. A. HRUSKA

Associate Editors:
R. J. ALPERN
W. J. ARENDSHORST
R. C. BLANTZ
J. V. BONVENTRE
T. DANIEL
L. L. HAMM III
M. R. HAMMERMAN
A. R. MORRISON
R. G. O'NEIL
S. OPARIL
B. A. STANTON

Editorial Board:
S. ALPER
B. J. BALLERMANN
P. BARRETT
M. G. BAUM
P. D. BELL
T. BERL
C. A. BERRY
J. E. BOURDEAU
P. C. BRAZY
M. D. BREYER
J. BRIGGS
J. C. BURNETT, JR.
P. CHURCHILL
R. M. CULPEPPER
V. W. DENNIS
G. F. DiBONA
J. DOUGLAS
T. D. DuBOSE, JR.
P. A. FRIEDMAN
S. L. GLUCK
D. GOOD
R. GRAY
W. GUGGINO
S. GULLANS
J. W. HANRAHAN
R. C. HARRIS
T. H. HOSTETTER
D. HUMES
J. INGELFINGER
P. A. INSEL
L. KARNISKI
W. KEANE
M. KNEPPER
B. M. KOEPPEN
J. I. KREISBERG
R. KUMAR
I. KURTZ
D. J. MARSH
K. MARTIN
B. MOLITORIS
N. G. MOSS
R. A. NISSENSON
M. S. PALLER
J. C. ROMERO
S. SANSOM
D. SCHLONDORFF
A. SCHOOLWERTH
V. L. SCHUSTER
G. SCHWARTZ
S. SHAH
P. SILVA
K. SKORECKI
E. SLATOPOLSKY
J. STOKES
R. L. TANNEN
G. TOBACK
J. WEINBERG

Publications Committee
J. S. COOK, *Chairman*
M. J. FREGLY
L. B. ROWELL
J. A. SCHAFER
C. M. TIPTON

Ex officio
B. B. RAUNER
Publications Manager and Executive Editor
S. CHIEN, *President*
M. FRANK, *Executive Dir.*

Editorial Staff
L. CHAMBERS
Production Manager
C. GRIFFIN
M. L. GOODWIN
Copy Editors

Published monthly by
THE AMERICAN PHYSIOLOGICAL SOCIETY
9650 Rockville Pike, Bethesda, MD 20814

Copyright © 1990 by the American Physiological Society. Printed in the United States of America by Waverly Press, Inc., Baltimore, MD 21202. The code at the bottom of the first page of an article indicates the copyright owner's consent that copies of an article may be made beyond that permitted by sections 107 and 108 of the U.S. Copyright Law—unless the copies are for general distribution, for advertising, for creating new works, or for resale—provided the per-copy fee is paid through the Copyright Clearance Center, Inc., 27 Congress St., Salem, MA 01970.

Guest Referee Editors

The Publications Committee of the American Physiological Society gratefully acknowledges the services of the following guest referee editors who assisted the Editorial Board in the reviews of manuscripts.

R. G. Abramson
R. J. Anderson
S. Anderson
S. Anderson
W. P. Anderson
K. Badr
B. Baigi
A. Baines
R. S. Balaban
S. Balsan
R. O. Banks
M. Barac-Nieto
D. C. Batile
C. Baylis
R. Beach
J. Beck
W. H. Beierwaltes
R. Beliveau
E. Bellorin-Font
E. Bello-Reuss
J. A. Bertolatus
K. Beyenbach
B. Biagi
D. J. Bichet
M. Blair
W. B. Blythe
J. P. Bonjour
A. Brown
D. Brown
G. Brown
P. D. Brown
S. A. Brown
M. Burg
M. Burnatowska
D. A. Bushinsky
W. B. Campbell
M. Cantin
O. Carretero
R. Cerione
P. Chandhoke
H. S. Chase
C. Chatziantoniou
Y. F. Chen
L. Cheng
R. Chesney
M. C. Chobanian
S. Y. Chou
R. Civittelli
F. L. Coe
B. R. Cole
J. A. Cole
W. C. Cole
R. Colindres
J. Conger
K. P. Conrad
J. H. Coote
R. Coulson
A. W. Cowley
D. Coyne
F. R. Curry
A. V. Cybulsky
F. H. Daniels
P. D. Dass
M. Davies
B. Decker
W. M. Deen
R. A. Defronzo
F. R. DeRubertis
T. P. Dousa
M. Duffey
R. Duncan
M. Durnatowski-Hledin
L. D. Dworkin
D. Eaton
T. Ecay
R. M. Edwards
D. Ellison
F. H. Epstein
B. Escalante
D. Fanestil
G. Fejes-Toth
R. A. Felder
G. Feldman
T. F. Ferris
J. K. Foskett
M. B. Ganz
R. Garcia
L. C. Garg
K. D. Garlid
K. M. Gaudio
M. Gellai
F. J. Gennari
K. M. Giacomini
G. Giebisch
R. J. Glassock
F. Glorieux
M. Goligorsky
W. G. Goodman
P. Goodyer
J. P. Granger
D. A. Green
J. Greenwald
W. G. Guder
R. Gurich
R. L. Hackett
J. S. Handler
A. Haramati
A. I. Hassid
S. R. Hays
N. K. Hollenberg
W. Hsueh
M. Hughes
J. D. Huizinga
I. Ichikawa
M. Intaglietta
H. E. Ives
C. E. Johanson
E. J. Johns
G. S. Johnson
W. A. Kachadorian
F. J. Kaskel
G. Kaysen
S. A. Kempson
G. L. King
K. A. Kirchner
J. G. Kleinman
R. Kline
P. E. Klotman
F. G. Knox
M. Kokhandawala
V. Kon
H. A. Koomans
U. Kopp
T. Kotchen
J. Y. Lapointe
M. E. Laski
W. E. Lassiter
H. Layton
M. Levi
B. Levine
S. D. Levine
N. Levinsky
J. A. Lewicki
F. H. Liebach
M. Lieberherr
M. D. Lifschitz
M. D. Lindheimer
L. Liotta
C. S. Lo
D. H. Lovett
R. Loutzenhiser
T. Maack
D. Maddox
K. Madsen
P. Marsden
M. Martinez-Maldonado
D. Marver
S. K. Masur
R. D. McCabe
N. McCarty
J. C. McGiff
E. Meezan
P. Mene
R. W. Mercer
T. W. Meyer
A. Michael
S. Miller
T. Miller
J. W. Mills
K. Mitchell
H. L. Mizelle
L. C. Moore
C. Morris
D. J. Morris
J. J. Morrissey
S. K. Mujais
B. D. Myers
A. Naray-Fejes-Toth
K. Nath
L. G. Navar
J. M. Nerbonne
K. D. Nolph
E. P. Nord
J. T. Norman
J. Osborn
M. O'Donnell
L. G. Palmer
M. J. Peach
J. C. Pelayo
R. D. Perrone
D. Ploth
A. Pollock
A. J. Premen
T. Pressley
J. W. Putney
G. Quamme
L. D. Quarles
R. P. Quigley
L. Raij
G. M. Reaven
E. M. Renkin
H. G. Rennke
E. Ritz
J. Robillard
R. J. Roman
G. A. Rosenberg
C. Rothe
G. Sachs
H. Sackin
E. J. Salant
J. Sands
J. A. Schafer
H. Schmid
J. Schnermann
R. W. Schrier
J. H. Schwartz
M. Schwartz
A. Sebastian
J. R. Sedor
J. Seifter
F. Seney
J. A. Shayman
E. E. Simon
M. Simonson
S. Sims
P. Sokol
W. S. Spielman
K. Spring
R. A. Star
J. Stephenson
D. L. Stetson
L. Stoner
J. W. Strandhoy
G. E. Striker
M. Suzuki
A. Taylor
I. Teitelbaum
R. Tewarson
S. C. Thomson
R. Toto
H. Trachtman
D. J. Triggle
M. E. Trimble
D. A. Troyer
B. J. Tucker
V. M. Vehaskari
M. A. Venkatachalam
R. Venuto
J. W. Verlander
P. Vinay
S. Wall
D. H. Warden

D. G. Warnock
C. Watlington
M. Weinberger
D. Weiner
E. J. Weinman
T. Welbourne
D. E. Wesson
C. I. Whiteside
M. Whyte
J. Wiessner
J. C. Williams
C. S. Wingo
L. L. Woods
E. M. Worcester
J. Work
F. S. Wright
S. Wright
J. M. Wyss
P. H. Yancey
W. E. Yarger
D. Young
E. Zambraski
M. L. Zeidel
F. N. Ziyadeh
M. Zucker

American Journal of Physiology: Renal, Fluid and Electrolyte Physiology

No. 1. JULY 1990

EDITORIAL REVIEW

Modulation of vasopressin antidiuretic action by renal α_2-adrenoceptors
M. Gellai F1

Endothelium-derived relaxing factor influences renal vascular resistance
J. Radermacher, U. Förstermann, and J. C. Frölich F9

Intracoronary veratrine and acute aortic stenosis modify renal responses to hypotension in conscious dogs
J.-S. Chen and A. J. Gorman F18

Autoradiographic localization of atrial natriuretic peptide receptor subtypes in rat kidney
J. Brown, S. P. Salas, A. Singleton, J. M. Polak, and C. T. Dollery F26

Early effects of aldosterone on Na-K pump in rat cortical collecting tubules
Y. Fujii, F. Takemoto, and A. I. Katz F40

Double-barreled chloride channels of collecting duct basolateral membrane
S. C. Sansom, B.-Q. La, and S. L. Carosi F46

Glutamate dehydrogenase activities in microdissected rat nephron segments: effects of acid-base loading
P. A. Wright and M. A. Knepper F53

TGF-initiated vascular interactions between adjacent nephrons in the rat kidney
Ö. Källskog and D. J. Marsh F60

Aldosterone induces apical vesicles in rat distal colon
R. D. Perrone, J. P. Nye, D. E. McBride, D. J. Zahniser, J. J. Geyer, and A. A. Ucci F65

Role of angiotensin II in glomerulotubular balance
F.-Y. Liu and M. G. Cogan F72

Mechanisms of perfused kidney cytoprotection by alanine and glycine
A. D. Baines, N. Shaikh, and P. Ho F80

Morphological and physiological responses to aldosterone: time course and sodium dependence
J. B. Wade, B. A. Stanton, M. J. Field, M. Kashgarian, and G. Giebisch F88

ADH modulates plasma membrane lipid order of living MDCK cells via a cAMP-dependent process
M.-C. Giocondi, G. Friedlander, and C. Le Grimellec F95

Developmental changes of Ca^{2+}, PO_4, and calcitriol metabolism in spontaneously hypertensive rats
P. Bourgouin, P. Lucas, C. Roullet, A. Pointillart, M. Thomasset, M. Brami, L. Comte, B. Lacour, M. Garabédian, D. A. McCarron, and T. Drüeke F104

Measurement of Na-K-ATPase-mediated rubidium influx in single segments of rat nephron
L. Cheval and A. Doucet F111

Vitamin D-induced chronic hypercalcemia inhibits thick ascending limb NaCl reabsorption in vivo
L. N. Peterson F122

Atrial natriuretic peptide receptors in renal papilla of DOCA-salt hypertensive rats
E. Nuglozeh, G. Gauquelin, R. Garcia, J. Tremblay, and E. L. Schiffrin F130

Dopamine$_1$-receptor blockade inhibits ANP-induced phosphaturia and calciuria in rats
F. V. Ortola, I. Seri, S. Downes, B. M. Brenner, and B. J. Ballermann F138

Differences in synergistic actions of vasopressin and deoxycorticosterone in rat and rabbit CCD
L. Chen, S. K. Williams, and J. A. Schafer F147

Prostaglandin influences on afferent arteriolar responses to vasoconstrictor agonists
E. W. Inscho, P. K. Carmines, and L. G. Navar F157

Bulk isolation of renal PCT and PST. I. Glucose-dependent metabolic differences
C. E. Ruegg and L. J. Mandel F164

Bulk isolation of renal PCT and PST. II. Differential responses to anoxia or hypoxia
C. E. Ruegg and L. J. Mandel F176

Characterization of the macula densa stimulus for renin secretion
J. N. Lorenz, H. Weihprecht, J. Schnermann, O. Skøtt, and J. P. Briggs F186

No. 2. AUGUST 1990

EDITORIAL REVIEW

Physiology and biochemistry of vitamin D-dependent calcium binding proteins
M. Gross and R. Kumar F195

Mechanisms of impaired insulin secretion after chronic excess of parathyroid hormone
A. F. Perna, G. Z. Fadda, X.-J. Zhou, and S. G. Massry F210

Renal microvascular effects of endothelin
R. M. Edwards, W. Trizna, and E. H. Ohlstein F217

In vivo microperfusion of inner medullary collecting duct in rats: effect of amiloride and ANF
H. Sonnenberg, U. Honrath, and D. R. Wilson F222

Effect of high extracellular K^+ on Na-K-ATPase in cultured canine kidney cells
M. A. Manuli and I. S. Edelman F227

Interaction of captopril and ibuprofen on glomerular and tubular function in humans
M. Allon, C. B. Pasque, and M. Rodriguez F233

Hypertension and progressive glomerular injury caused by focal glomerular ischemia
P. L. Miller, H. G. Rennke, and T. W. Meyer F239

Difference in the Na affinity of Na^+-K^+-ATPase along the rabbit nephron: modulation by K
C. Barlet-Bas, L. Cheval, C. Khadouri, S. Marsy, and A. Doucet F246

Renal expression of IGF I in hypersomatotropic states
S. B. Miller, P. Rotwein, J. D. Bortz, P. J. Bechtel, V. A. Hansen, S. A. Rogers, and M. R. Hammerman F251

Atrial peptide and cGMP effects on NaCl transport in inner medullary collecting duct
A. S. Rocha and L. H. Kudo F258

Effects of mitogens and other agents on rat mesangial cell proliferation, pH, and Ca^{2+}
M. B. Ganz, M. C. Perfetto, and W. F. Boron F269

Role of microfilaments in maintenance of proximal tubule structural and functional integrity
P. S. Kellerman, R. A. F. Clark, C. A. Hoilien, S. L. Linas, and B. A. Molitoris F279

Sulfate inhibits [^{14}C]phosphonoformic acid binding to renal brush-border membranes
H. S. Tenenhouse and J. Lee F286

Pressor effect of endothelium-derived relaxing factor inhibition in conscious virgin and gravid rats
J. G. Umans, M. D. Lindheimer, and W. M. Barron F293

Dopamine inhibits Na^+-H^+ exchanger activity in renal BBMV by stimulation of adenylate cyclase
C. C. Felder, T. Campbell, F. Albrecht, and P. A. Jose F297

Efficacy of nifedipine to prevent systemic and renal vasoconstrictor effects of endothelin
P. Madeddu, X.-P. Yang, V. Anania, C. Troffa, A. Pazzola, A. Soro, P. Manunta, G. Tonolo, M. P. Demontis, M. V. Varoni, M. G. Melis, and N. Glorioso F304

Endothelin in experimental congestive heart failure in the anesthetized dog
P. G. Cavero, W. L. Miller, D. M. Heublein, K. B. Margulies, and J. C. Burnett, Jr. F312

PGE_2 inhibits AVP-induced water flow in cortical collecting ducts by protein kinase C activation
R. L. Hébert, H. R. Jacobson, and M. D. Breyer F318

Extracellular matrix regulates proliferation and phospholipid turnover in glomerular epithelial cells
A. V. Cybulsky, J. V. Bonventre, R. J. Quigg, L. S. Wolfe, and D. J. Salant F326

Oxidative stress in isolated rat renal proximal and distal tubular cells
L. H. Lash and J. J. Tokarz F338

Hypotonic shock activates a maxi K^+ channel in primary cultured proximal tubule cells
L. Dubé, L. Parent, and R. Sauvé F348

P_{CO_2} in renal cortex
M. De Mello Aires, M. J. Lopes, and G. Malnic F357

High proton flux through membranes containing antidiuretic hormone water channels
H. W. Harris, Jr., D. Kikeri, A. Janoshazi, A. K. Solomon, and M. L. Zeidel F366

Exaggerated renal vascular reactivity to angiotensin and thromboxane in young genetically hypertensive rats
C. Chatziantoniou, F. H. Daniels, and W. J. Arendshorst F372

RAPID COMMUNICATIONS

Expression of the Na^+-K^+-$2Cl^-$ cotransporter in *Xenopus* oocytes
C. E. Burnham, J. Kidd, and H. C. Palfrey F383

Inhibition by (D-Trp^{12}, Tyr^{34})bPTH(7—34)amide of PTH and PTHrP effects on P_i transport in renal cells
L. Pizurki, R. Rizzoli, and J.-P. Bonjour F389

No. 3. SEPTEMBER 1990

EDITORIAL REVIEW

The vasopressin-regulated urea transporter in renal inner medullary collecting duct
M. A. Knepper and R. A. Star F393

Contribution of luminal ammoniagenesis to proximal tubule ammonia appearance in the rat
E. E. Simon, C. Merli, J. Herndon, and L. L. Hamm F402

Effects of PTH, calcitonin, and cAMP on calcium transport in rabbit distal nephron segments
T. Shimizu, K. Yoshitomi, M. Nakamura, and M. Imai F408

Endogenous natriuretic peptides: effect on collecting duct function in rat kidney
P. Schulz-Knappe, U. Honrath, W. G. Forssmann, and H. Sonnenberg F415

Cyclooxygenase inhibition enhances rat interleukin 1β-induced growth of rat mesangial cells in culture
R. A. K. Stahl, F. Thaiss, U. Haberstroh, S. Kahf, A. Shaw, and W. Schoeppe F419

Inhibitory effect of phorbol ester on sodium transport in frog urinary bladder
T. Satoh and H. Endou F425

Phosphorus restriction reverses hyperparathyroidism in uremia independent of changes in calcium and calcitriol
S. Lopez-Hilker, A. S. Dusso, N. S. Rapp, K. J. Martin, and E. Slatopolsky F432

Epidermal growth factor accelerates renal repair in mercuric chloride nephrotoxicity
T. M. Coimbra, D. A. Cieslinski, and H. D. Humes F438

Downregulation of parathyroid hormone receptors in renal membranes from aged rats
H. Hanai, D. P. Brennan, L. Cheng, M. E. Goldman, M. Chorev, M. A. Levine, B. Sacktor, and C. T. Liang F444

Effects of intracellular calcium on proximal bicarbonate absorption
F.-Y. Liu and M. G. Cogan F451

Acidification mechanisms on the basolateral membrane of renal vesicles from the developing nephron
M. Baum F458

Neurogenic control of pressure natriuresis in conscious dogs
H. Ehmke, P. B. Persson, M. Seyfarth, and H. R. Kirchheim F466

Growth hormone stimulates IGF I gene expression in isolated rat renal collecting duct
S. A. Rogers, S. B. Miller, and M. R. Hammerman F474

Differential Na fluxes with artificial and native fluids in clip models of volume expansion
S. Reddy, C. Cochineas, and Á. Z. Györy F480

Stimulation of transient elevations in cytosolic Ca^{2+} is related to inhibition of P_i transport in OK cells
A. Miyauchi, V. Dobre, M. Rickmeyer, J. Cole, L. Forte, and K. A. Hruska F485

Regulation of small-conductance K^+ channel in apical membrane of rat cortical collecting tubule
W. Wang, A. Schwab, and G. Giebisch F494

Monoaminergic innervation of the rat kidney: a quantitative study
L. Barajas and K. Powers F503

Regional localization of renal Na^+-H^+ antiporter: response to respiratory acidosis
O. S. Ruiz, Z. Talor, and J. A. L. Arruda F512

Thiazide-sensitive NaCl absorption in rat cortical collecting duct
Y. Terada and M. A. Knepper F519

RAPID COMMUNICATIONS

Tubuloglomerular feedback kinetics in spontaneously hypertensive and Wistar-Kyoto rats
F. H. Daniels and W. J. Arendshorst F529

Effects of ANF on cGMP synthesis in inner medullary collecting duct subsegments of rats
K. Ujiie, H. Nonoguchi, K. Tomita, and F. Marumo F535

No. 4. OCTOBER 1990

Stimulation of renin secretion by ethacrynic acid is independent of Na^+-K^+-$2Cl^-$ cotransport
C. S. Park, P. S. Doh, R. E. Carraway, G. G. Chung, J. C. S. Fray, and T. B. Miller F539

Glomerular response to hyperglycemia in human diabetic nephropathy
A. Remuzzi, G. Viberti, P. Ruggenenti, C. Battaglia, R. Pagni, and G. Remuzzi F545

Segmental distribution of epidermal growth factor binding sites in rabbit nephron
M. D. Breyer, R. Redha, and J. A. Breyer F553

Bilitranslocase localization and function in basolateral plasma membrane of renal proximal tubule in rat
M. M. Elias, G. C. Lunazzi, S. Passamonti, B. Gazzin, M. Miccio, G. Stanta, G. L. Sottocasa, and C. Tiribelli F559

Restoration of tubuloglomerular feedback in volume-expanded rats by angiotensin II
J. Schnermann and J. P. Briggs F565

Renal responses to lower body negative pressure in humans
B. Tidgren, P. Hjemdahl, E. Theodorsson, and J. Nussberger F573

Glucose absorption by isolated perfused rat proximal straight tubules
J. L. Garvin F580

Pathways for apical and basolateral membrane NH_3 and NH_4^+ movement in rat proximal tubule
P. A. Preisig and R. J. Alpern F587

Relative osmotic effects of raffinose, KCl, and NaCl across basolateral cell membrane
L. W. Welling, D. J. Welling, and T. Ochs F594

Effects of nifedipine and enalapril on glomerular injury in rats with deoxycorticosterone-salt hypertension
L. D. Dworkin, R. I. Levin, J. A. Benstein, M. Parker, M. E. Ullian, Y. Kim, and H. D. Feiner F598

Renal atrial natriuretic peptide receptor subtypes in spontaneously hypertensive rats
J. Brown, S. P. Salas, and J. M. Polak F605

Salicylic acid permeability properties of the rabbit cortical collecting duct
J.-Y. Chatton, K. Besseghir, and F. Roch-Ramel F613

Characterization of atrial natriuretic factor receptors in human glomerular epithelial and mesangial cells
D. Chansel, P. Pham, M.-P. Nivez, and R. Ardaillou F619

Apical and basolateral membrane H^+ extrusion mechanisms in inner stripe of rabbit outer medullary collecting duct
S. R. Hays and R. J. Alpern F628

Depressed distal tubule acidification corrects chloride-deplete alkalosis in rats
D. E. Wesson F636

Renal actions of endothelin: interaction with prostacyclin
S.-Y. Chou, A. Dahhan, and J. G. Porush F645

Modulation of osmolytes in MDCK cells by solutes, inhibitors, and vasopressin
C. W. Heilig, R. M. Brenner, A. S. L. Yu, B. C. Kone, and S. R. Gullans F653

Recruitment of renin gene-expressing cells in adult rat kidneys
R. A. Gomez, R. L. Chevalier, A. D. Everett, J. P. Elwood, M. J. Peach, K. R. Lynch, and R. M. Carey F660

Na^+-H^+ exchange is stimulated by protein kinase C activation in inner medullary collecting duct cells
I. N. Slotki, J. H. Schwartz, and E. A. Alexander F666

Glucocorticoid receptors mediate mineralocorticoid-like effects in cultured collecting duct cells
A. Náray-Fejes-Tóth and G. Fejes-Tóth F672

Interaction of adenosine with vasopressin in the inner medullary collecting duct
Y. Yagil F679

Resistance of descending vasa recta to the transport of water
T. L. Pallone, J. Work, and R. L. Jamison F688

Regulation of eicosanoid biosynthesis by phorbol ester in Madin Darby canine kidney cells
D. W. Coyne, M. Mordhorst, and A. R. Morrison F698

High glucose induces cell hypertrophy and stimulates collagen gene transcription in proximal tubule
F. N. Ziyadeh, E. R. Snipes, M. Watanabe, R. J. Alvarez, S. Goldfarb, and T. P. Haverty F704

MODELING METHODOLOGY FORUM

Model of TGF-proximal tubule interactions in renal autoregulation
W. A. Cupples, A. S. Wexler, and D. J. Marsh F715

RAPID COMMUNICATIONS

Thapsigargin demonstrates calcium-dependent regulation of phosphate uptake in HeLa cells
J. P. Middleton, F. J. Albers, V. W. Dennis, and J. R. Raymond F727

No. 5. NOVEMBER 1990

Effects of an aldose reductase inhibitor on organic osmotic effectors in rat renal medulla
P. H. Yancey, R. G. Haner, and T. H. Freudenberger F733

Single-nephron responses to systemic administration of amino acids in dogs
S. A. Brown and L. G. Navar F739

Effects of growth hormone and IGF-I on renal function in rats with normal and reduced renal mass
S. B. Miller, V. A. Hansen, and M. R. Hammerman F747

Polarity of kallikrein release and activation in perfused rat kidneys
M. P. Borić, J. Corthorn, R. Silva, and J. S. Roblero F752

Sodium and calcium share the electrogenic 2 Na^+-1 H^+ antiporter in crustacean antennal glands
G. A. Ahearn and P. Franco F758

Angiotensin II induces cellular hypertrophy in cultured murine proximal tubular cells
G. Wolf and E. G. Neilson F768

Ion concentrations in the rat CCD: differences between cell types and effect of alkalosis
J. D. Gifford, J. H. Galla, R. G. Luke, and R. Rick F778

Extracellular matrix receptors in the kidney cortex
E. E. Simon and J. A. McDonald F783

Evidence that dopamine-2 mechanisms control renal function
H. M. Siragy, R. A. Felder, N. L. Howell, R. L. Chevalier, M. J. Peach, and R. M. Carey F793

Maturation of HCO_3^- transport in rabbit collecting duct
F. M. Mehrgut, L. M. Satlin, and G. J. Schwartz F801

Leukotrienes stimulate neutrophil adhesion to mesangial cells: modulation with lipoxins
H. R. Brady, U. Persson, B. J. Ballermann, B. M. Brenner, and C. N. Serhan F809

12-HETE modulates Na-coupled uptakes in proximal tubular cells: role of diacylglycerol kinase inhibition
G. Friedlander, C. Le Grimellec, J. Sraer, and C. Amiel F816

cAMP mediates the increase in apical membrane Na^+ conductance produced in rat CCD by vasopressin
J. A. Schafer and S. L. Troutman F823

Urodilatin, a natriuretic factor from kidneys, can modify renal and cardiovascular function in men
H. Saxenhofer, A. Raselli, P. Weidmann, W.-G. Forssmann, A. Bub, P. Ferrari, and S. G. Shaw F832

Reduction of cerebral NaCl concentration can abolish mineralocorticoid escape
G. L. Pennington and M. J. McKinley F839

Factors affecting the ratio of different organic osmolytes in renal medullary cells
T. Moriyama, A. Garcia-Perez, and M. B. Burg F847

SPECIAL COMMUNICATIONS

Bladder contributes to eicosanoids excreted in urine
A. A. Reyes and S. Klahr F859

No. 6. DECEMBER 1990

Effect of acute pH change on mitochondrial glutamine transport
M. Sastrasinh and S. Sastrasinh F863

Identification of a putative Na^+-H^+ exchanger regulatory cofactor in rabbit renal BBM
G. Morell, D. Steplock, S. Shenolikar, and E. J. Weinman F867

Oxytocin receptors in rat kidney during development
A. Schmidt, S. Jard, J. J. Dreifuss, and E. Tribollet F872

Angiotensin II regulates renin gene expression
D. W. Johns, M. J. Peach, R. A. Gomez, T. Inagami, and R. M. Carey F882

Electrical properties of smooth muscle cell membrane in renal pelvis of rabbits
N. Seki and H. Suzuki F888

Postnatal development of oxidative enzymes in various rat nephron segments: effect of weaning on different diets
J. Bastin, F. Djouadi, J. P. Geloso, and C. Merlet-Benichou F895

Cell pH regulation in rabbit outer medullary collecting duct cells: mechanisms of HCL_3^--independent processes
M. Kuwahara, S. Sasaki, and F. Marumo F902

Evidence for a preglomerular oxygen diffusion shunt in rat renal cortex
H. J. Schurek, U. Jost, H. Baumgärtl, H. Bertram, and U. Heckmann F910

Localization of arginine synthesis along rat nephron
O. Levillain, A. Hus-Citharel, F. Morel, and L. Bankir F916

Inhibition of proximal tubule Na^+-K^+-ATPase activity requires simultaneous activation of DA receptors
A. Bertorello and A. Aperia F924

Effect of transforming growth factor-α and parathyroid hormone-related protein on phosphate transport in renal cells
L. Pizurki, R. Rizzoli, J. Caverzasio, and J.-P. Bonjour F929

Effects of atrial natriuretic peptide on renal arterioles: morphometric analysis using microvascular casts
K. Kimura, Y. Hirata, S. Nanba, A. Tojo, H. Matsuoka, and T. Sugimoto F936

Renal effects of moderate hemorrhage in the conscious pregnant rat
C. Baylis, C. Brango, and K. Engels F945

Dihydropyridine-sensitive volume regulation in proximal tubule: the calcium window
N. A. McCarty and R. G. O'Neil F950

Phosphate-dependent glutaminase activity in rat renal cortical and medullary tubule segments
P. A. Wright and M. A. Knepper F961

Ontogeny of DA, receptor-adenylate cyclase coupling in proximal convoluted tubules
S. Kinoshita and R. A. Felder F971

α_2-Adrenergic receptors regulate Na^+-H^+ exchange via a cAMP-dependent mechanism
J. D. Clark, E. J. Cragoe, Jr., and L. E. Limbird F977

Water permeability of apical and basolateral cell membranes of rat inner medullary collecting duct
B. Flamion and K. R. Spring F986

ANNOUNCEMENTS F1000

Subject Index to Volume 28 F1001
Author Index to Volume 28 F1009

CORRIGENDA

Volume 258, May 1990
Volume 27, May 1990

Pages 1401–1408: Daniel R. Martin, Joe B. Pevahouse, David J. Trigg, David L. Vesely, and John E. Buerkert. "Three peptides from the ANF prohormone NH_2-terminus are natriuretic and/or kaliuretic." Pages 1404 and 1406, Tables 2 and 3, respectively: in the boxhead, the units for $U_{Na}V$ should be $\mu eq \cdot min^{-1} \cdot g$ kidney wt^{-1}.